REMARKS

In response to the Office Action dated December 26, 2007, no amendments are made. Claims 3-4, 8-9, 15-16, 20 and 23 were previously cancelled without prejudice. Claims 1, 2, 5-7, 10-14, 17-19, 21-22, 24-33 are now active in this application. Claims 1, 6, 13, 18, and 24 are the only independent claims.

Claims 1, 2, 6, 10-14, 18, 21, 22, and 24-33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Okubo (U.S. 5,600,734) in view of Tanaka (U.S. 7,116,816), and further in view of Bamberger (U.S. 5,946,407). Applicants traverse this rejection.

Claims 5 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Okubo (U.S. 5,600,734) in view of Tanaka (U.S. 7,116,816) and Bamberger (U.S. 5,946,407) and Djakovic (U.S. 5,875,267). Applicants traverse this rejection.

Claims 7 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Okubo (U.S. 5,600,734) in view of Tanaka (U.S. 7,116,816) and Bamberger (U.S. 5,946,407) and De Gasperi (U.S. 4,433,385). Applicants traverse this rejection.

Independent claim 1 recites, in part, "**setting a specified pixel value range which is positioned between representative pixel values of two regions in said inspection images and/or said reference image, said two regions corresponding to two kinds of regions on said object**; obtaining transfer characteristics to enhance a difference between arbitrary pixel values included in said specified pixel value range relative to a difference between arbitrary pixel values other than said specified pixel value range; obtaining an enhanced differential image between said inspection image and said reference image on the basis of said transfer characteristics; and performing an inspection on the basis of said enhanced differential image."

As illustrative and non-limiting examples of the "**specified pixel value range**" of claim 1, please note range 63 in FIG. 6 for a bimodal distribution, and please note range 63 in FIG. 7 for a distribution that is not bimodal.

Further, please note that the term "**two regions**" in claim 1 refers to regions of an image with different types of structures. For example, the two regions may be the wiring pattern region and the background region, as described in the application at page 9, lines 1-2, 20-21. These two regions may yield a bimodal pixel value distribution in a histogram, as illustrated by FIG. 6.

Independent claim 6 recites, in part, "**setting a specified pixel value range which is positioned outside a pixel value range corresponding to a specific region in said inspection image and/or said reference image, said specific region corresponding to a specific kind of region on said object**; obtaining transfer characteristics to enhance a difference between arbitrary pixel values included in said specified pixel value range relative to a difference between arbitrary pixel values other than said specified pixel value range."

Independent claim 13 recites, in part, "c) **setting a specified pixel value range which is positioned between representative pixel values of two regions** in said inspection image and/or said reference image, said two regions corresponding to two kinds of regions on said object; d) obtaining transfer characteristics to enhance difference between arbitrary pixel values included in said specified pixel value range relatively to difference between arbitrary pixel values other than said specified pixel value range.

Independent claim 18 recites, in part, "c) **setting a specified pixel value range which is positioned outside a pixel value range corresponding to a specific region in said inspection image and/or said reference image**, said specific region corresponding to a specific kind of region on said object; d) obtaining transfer characteristics to enhance a difference between

arbitrary pixel values included in said specified pixel value range relative to a difference between arbitrary pixel values other than said specified pixel value range."

Independent claim 24 recites, in part, "c) **setting a specified pixel value range which is positioned between representative pixel values of two regions in said inspection image and/or said reference image, said two regions corresponding to two kinds of regions on said object**; d) obtaining transfer characteristics to enhance a difference between arbitrary pixel values included in said specified pixel value range relative to a difference between arbitrary pixel values other than said specified pixel value range."

In order to establish a *prima facie* obviousness under 35 U.S.C. § 103(a), all the claim limitations must be taught or suggested by the prior art. *In re Rokya*, 490 F. 2d 981, 180 USPQ 580 (CCPA 1974). Further, "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006). At a minimum, the cited prior art does not disclose (expressly or inherently) the above recited limitation.

The Office Action, at page 2, admits that Tanaka and Bamberger do not teach or suggest "**setting a specified pixel value range which is positioned between representative pixel values of two regions in said inspection images and/or said reference image, said two regions corresponding to two kinds of regions on said object**," as required by claim 1.

The Office Action then asserts that Okubo, at FIG. 36C, allegedly discloses the above recited limitation. However, Okubo, at column 31, line 62 to column 32, line 32, merely states:

> FIG. 36(A) shows the object image 514 of a semiconductor integrated circuit device. The object image 514 includes a wiring pattern 514a. Edges of this wiring pattern 514a are going to be extracted and subjected to a pattern matching operation. Steps S1 to S6 of FIG. 35 compute the blur level k of the image data

D1 of the object image 514. Steps S7 and S8 detect edges in the object image 514 according to the blur level k, and step S9 carries out a pattern matching operation.

These steps will be explained more precisely. The step S1 of FIG. 35 receives the image data D1 related to a given image p[i, j] in the object image 514 and stores the same in the first frame memory 524a. The image data D1 may involve blur to provide a curve of FIG. 36(B) representing a relationship between signal strength S[i] and X-axis positions i. In the figure, the signal strength S[i] of the image data D1 rises at an edge of the wiring pattern 514a.

The blur level (the width of blur) k of the image data D1 extends over several pixels as shown in FIG. 36(C), which is an enlarged view showing a rise corresponding to the edge.

The step S2 calculates absolute differences (differential data) for all pixels (i, j) of the image p[i, j]. An image p[i+k, j] is located away from the image p[i, j] by k pixels (k being an optional number) in the direction of an axis X. An image p[i, j+k] is located away from the image p[i, j] by k pixels in the direction of an axis Y. Then, differential data for all pixels (i, j) are calculated as follows:

Thus, FIG. 36C of Okubo is merely an enlarged view showing a rise corresponding to an edge, and is merely directed to detect edges out of a blurred image by obtaining a blur level "k."

Specifically, FIG. 36C of **Okubo merely identifies a geometric range of the blur**, wherein the horizontal axis of FIG. 36C illustrates a **position of the pixel**. Note that the horizontal axis of FIG. 36C states "**POSITION(PIXEL),**" and the vertical axis states "**STRENGTH.**"

In contrast to Okubo, claim 1 recites, "**setting a specified pixel value range** which is positioned between representative pixel values of two regions in said inspection images and/or said reference image, said two regions corresponding to two kinds of regions on said object."

As an illustrative and non-limiting example of the "**specified pixel value range**" of claim 1, please note range 63 in FIG. 6 for a bimodal distribution, wherein the horizontal axis states "**PIXEL VALUE**" and the vertical axis states "**FREQUENCY.**" In other words, the specified pixel value range of claim 1 is a range of pixel values.

Thus, the "specified pixel value range" of claim 1 has nothing to do with Okubo's geometric position of the pixel.

Thus, at a minimum, the combination of Okubo and Tanaka and Bamberger fails to teach or suggest the forgoing limitation, and therefore does not render claim 1 obvious.

Further, Applicants submit that the other cited art does not remedy the deficiencies of Okubo and Tanaka and Bamberger.

Further, Applicants submit that independent claims 6, 13, 18, and 24 are allowable, at a minimum, for the same reasons as independent claim 1.

Under Federal Circuit guidelines, a dependent claim is allowable if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987).

Thus, as independent claims 1, 6, 13, 18, and 24 are allowable for the reasons set forth above, it is respectfully submitted that dependent claims 2, 5, 7, 10-12, 14, 17, 19, 21-22, and 25-31 are allowable for at least the same reasons as their respective base claims.

Further, dependent claim 7 requires average values of values of pixels belonging to two regions, and dependent claim 19 requires a standard deviation of values of pixels belonging to the specific region. Bamberger and Gasperi merely disclose simple averaging (or smoothing) of adjacent pixels, and do not disclose regions in the sense of independent claim 1 as described above. The other cited art does not remedy the deficiencies of Bamberger and Gasperi. Thus, Applicants submit that dependent claims 7 and 19 are also allowable for these additional reasons.

Additionally, dependent claims 11, 22, 27, and 32 are require differential images. None of the cited art disclose differential images. Thus, Applicants submit that dependent claims 11, 22, 27, and 32 are also allowable for this additional reason.

Also, claim 10 requires, "said transfer characteristics include inspection image transfer characteristics obtained from said inspection image and reference image transfer characteristics obtained from said reference image." In contrast to claim 10, Bamberger merely shows a transfer characteristic of an image, but does not teach or suggest a transfer characteristics obtained from both an inspection image **and** a reference image. Thus, Applicants submit that claim 10 is also allowable for this reason, and claims 21, 26, and 31 are also allowable for similar reasons.

Further, claim 11 requires, "said operation part synthesizes a differential image between said inspection image and said reference image and said enhanced differential image and compares values of pixels in a synthesized image with a predetermined threshold value, to perform inspection." In contrast to claim 11, Tanaka merely discloses using the differential image, but does not teach or suggest synthesizing a differential image and an enhanced differential image. Thus, Applicants submit that claim 11 is also allowable for this reason, and claims 22, 27, and 32 are also allowable for similar reasons.

Additionally, claim 25 requires, "said transfer characteristics are obtained in the form of two-dimensional lookup table, and said enhanced differential image is obtained by using said two-dimensional lookup table." In contrast to claim 25, Bamberger merely discloses a one dimensional lookup table (an output on a vertical axis from one input on a horizontal axis). Thus, Applicants submit that claim 25 is also allowable for this reason, and that claims 29, 30, and 33 are also allowable for similar reasons.

Further, claim 5 requires, "said representative pixel values are average values of values of pixels belonging to said two regions, respectively." In contrast to claim 5, Djakovic merely discloses using an weighted average to obtain a blurred image. There is no articulated reasoning

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with rational underpinning to support the legal conclusion of obviousness for combining Djakovic with the other cited art. Thus, Applicants submit that claim 5 is also allowable for this reason, and that claim 17 is also allowable for similar reasons.

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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